

WOODTECH
MEASUREMENT SOLUTIONS

AN EXCELSYS
COMPANY

Timber Measurements Society Central Meeting, April 11, 2013

Mario Angel
Regional Manager – North America

Woodtech in the World

Brazil



Ecuador



Chile



EnergiaActiva



Argentina



Germany



Poland



United States



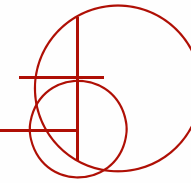
Offices

- Chile - Santiago
- Brazil - Itapema, SC
- USA - Portland, OR

KEY	
BULKMETER	●
CHIPMETER	●
COALMETER	●
LOGMETER	●



In the U.S. - Two different regions



South

West



Southern Yellow Pine
\$/ton

Log Scaling: 0%

Quality Control:

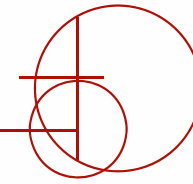
- Number of logs/load
- Average length
- % logs on specification (sweep, too small diameter, short logs, rotten wood, knots, etc.)

D.Fir, Hemlock, Pine, Cedar, etc.
\$/MBF

Log Scaling: 10% - 100%

Quality Control: During scaling

Therefore: Two Logmeter Systems

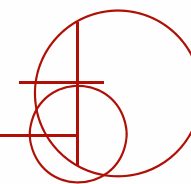


South – Logmeter 5000

West – Logmeter 6000

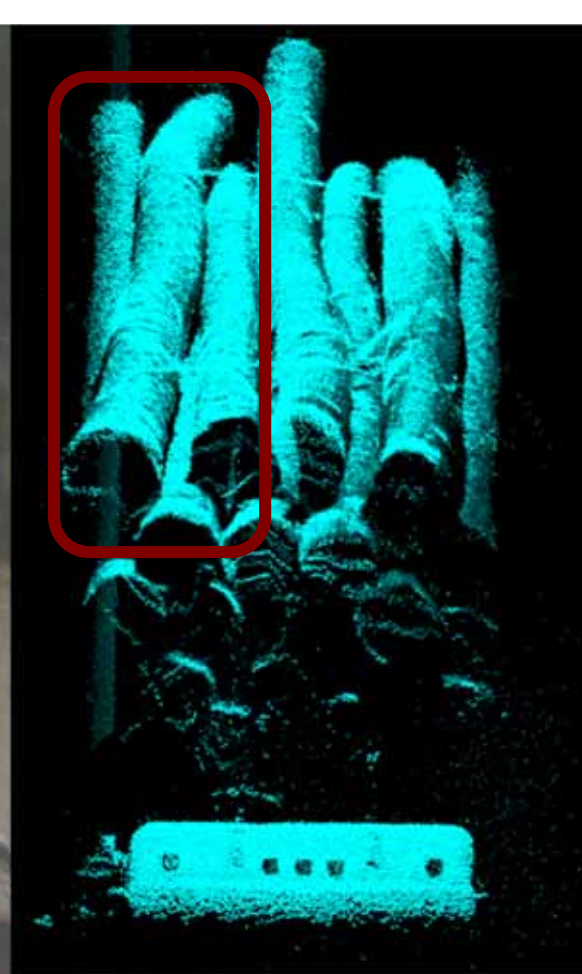
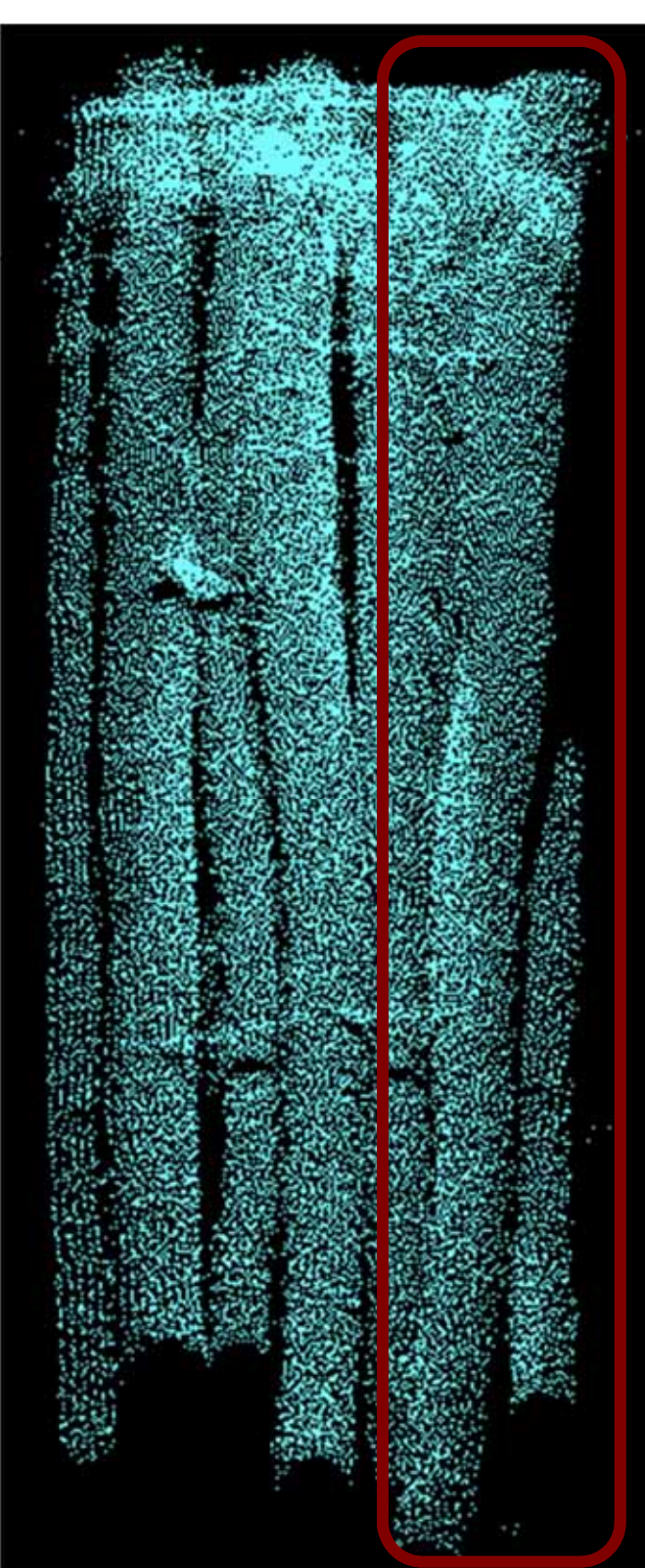


Logmeter 5000 - South



Quality Control, Auditing and Volume measurement

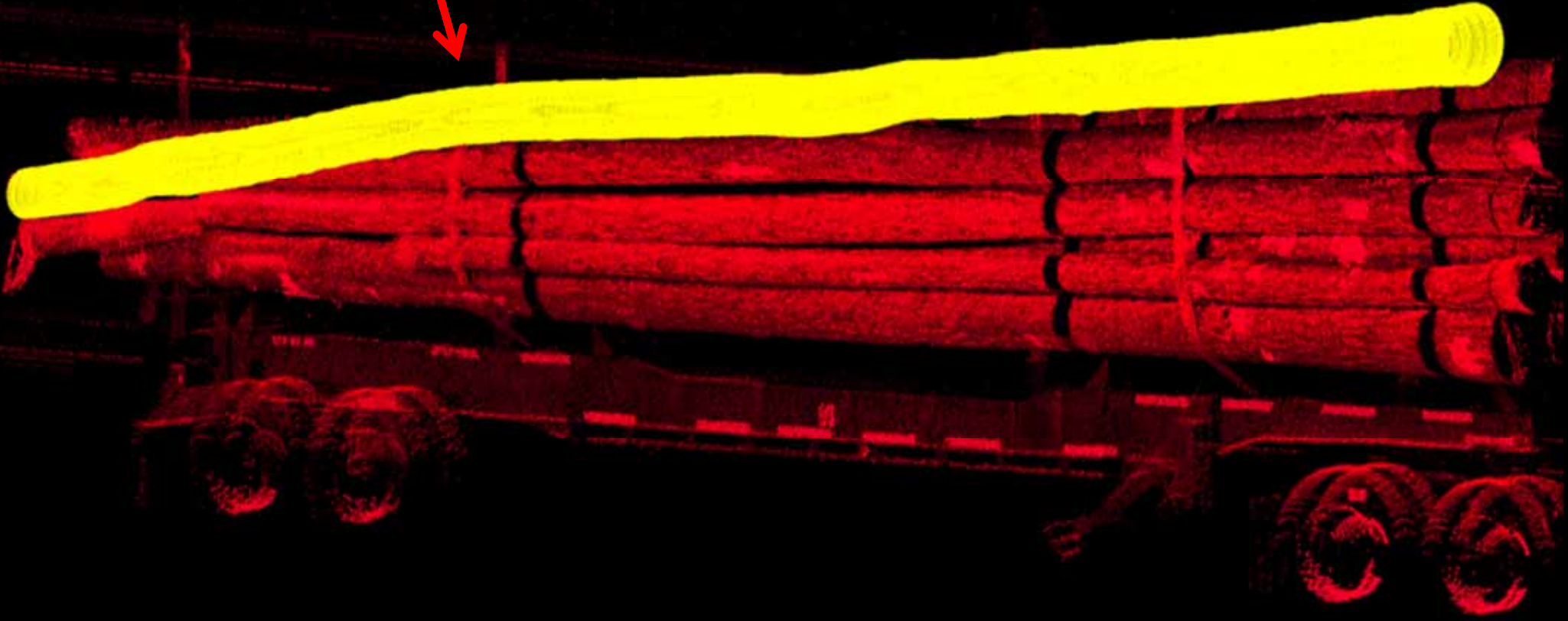




Detection and evaluation of logs with sweep and crook defects

Log 2

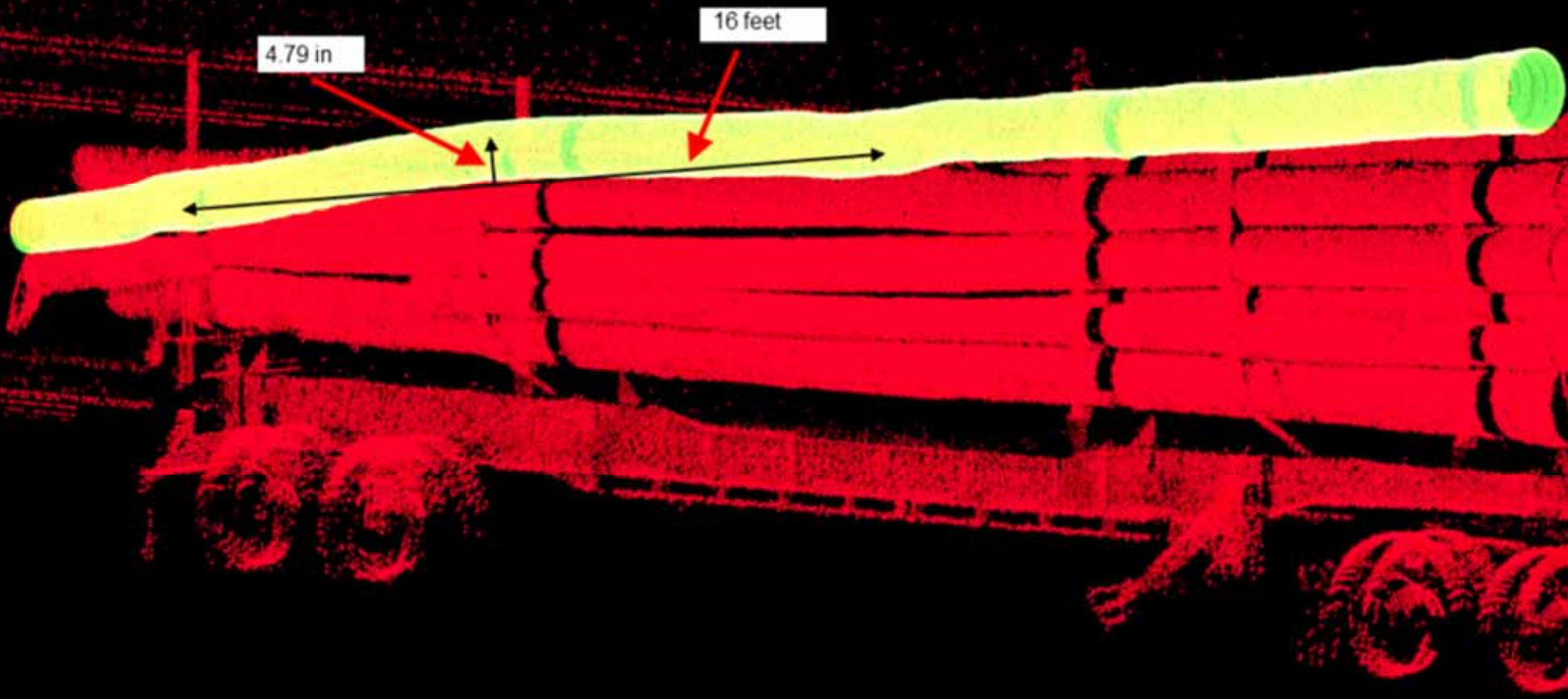
Detection



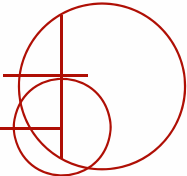
Log 2

DEFECT

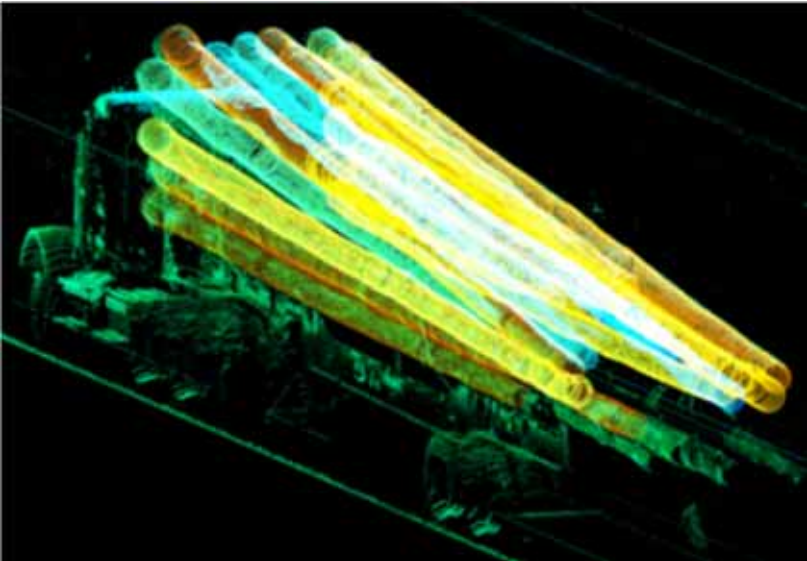
Evaluation



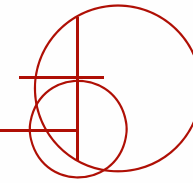
Pictures of loads



Pictures are used to identify type of loads, audit the flow of wood entering the mill, determine if load meets height and safety requirements, etc.



Log Marker module



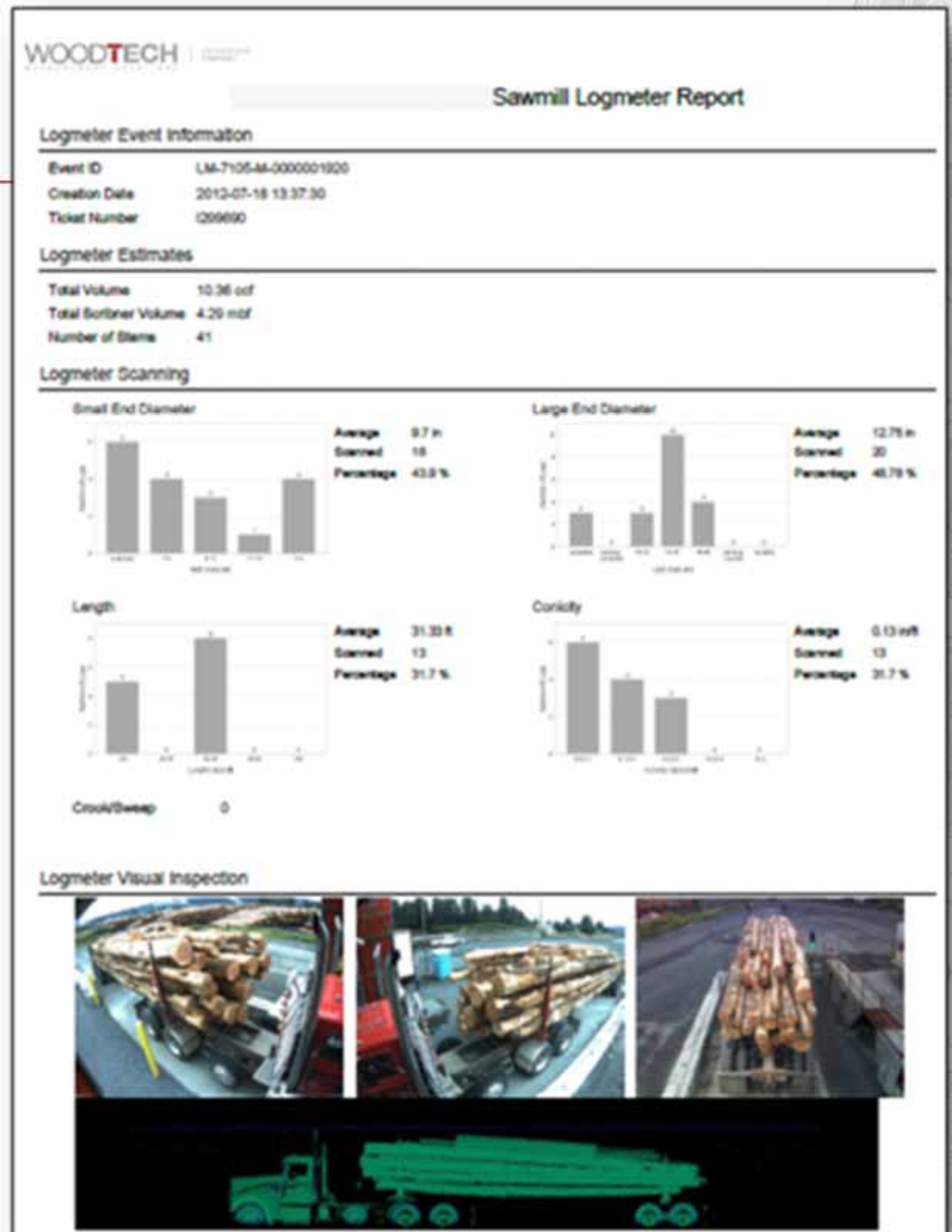
Operator selects defective logs on the picture and the Log Marker incorporates defects on data and report for weight deduction.

Defect detection is done before the logs are unloaded.

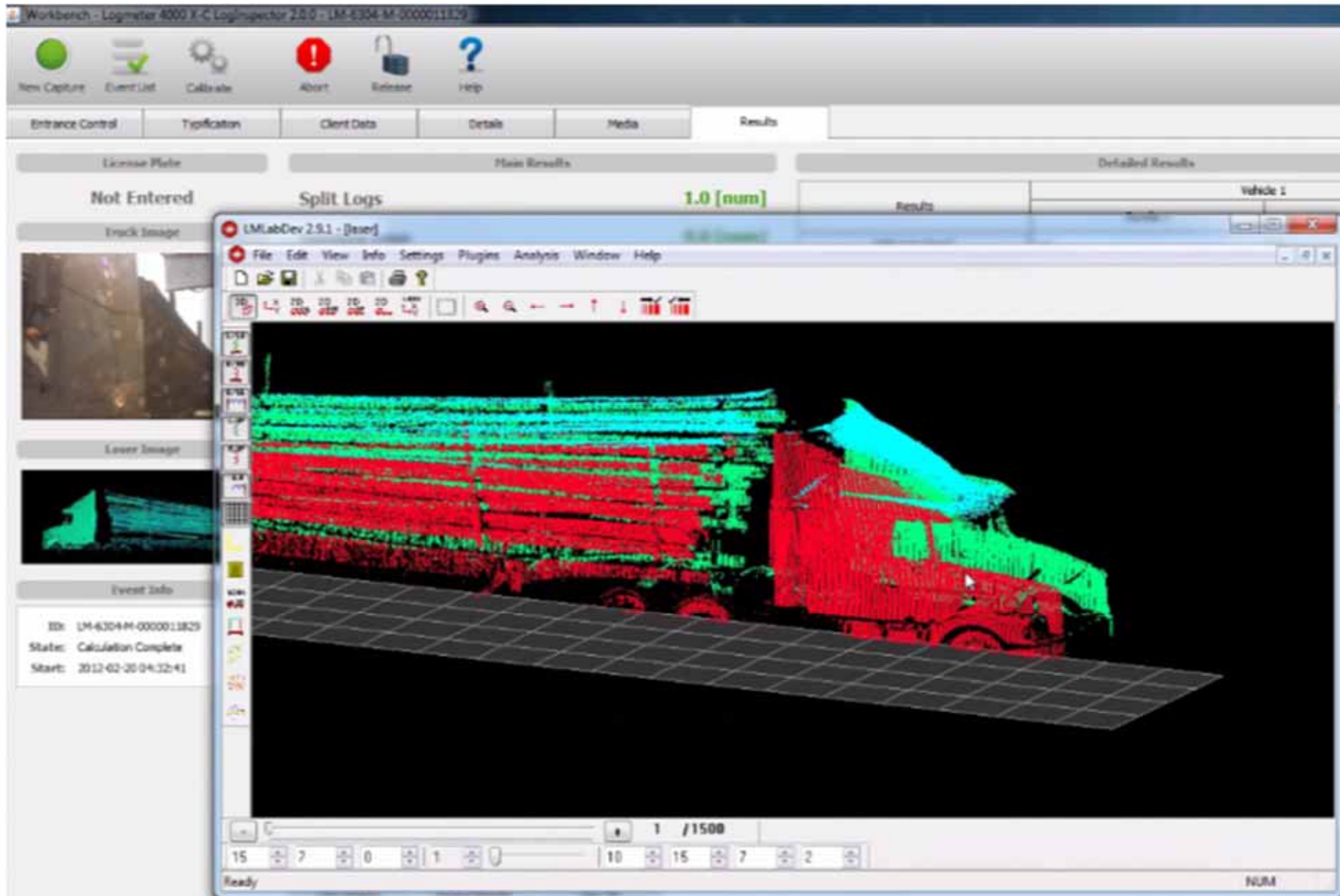
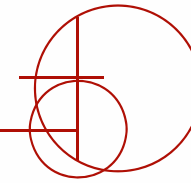
Logmeter® Report

Each driver receives a customized log load report on the way out.

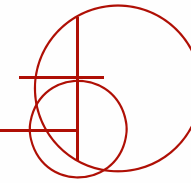
1. Date and Time
2. Ticket number
3. Log Volume (**Scribner, Cubic, etc.**)
4. Number of logs
5. Number & Type of defective logs
6. SED, LED & Length distributions
7. Average SED, LED & Length
8. % Scanned
9. Taper
10. # of sweepy/crooked logs
11. Pictures of load
12. Scanned image



Logmeter® Auditing System



Logmeter[®]Analytical Tool



Filters

Product	Land Owner	Contract #	Vendor #
Regular logs			

Time Span

From:	15/Feb/2011
To:	20/Jul/2011

Large End Diameter (LED)

Range [in]	Count	%
<12	5,345	14%
12-15	18,510	50%
15-20	11,915	32%
20-26	1,152	3%
>26	56	0%
Total	36,978	

Average LED 14.6 Inches

Small End Diameter (SED)

Range [in]	Count	%
<8	3,615	10%
8-10	21,168	57%
10-12	8,963	24%
12-14	2,357	6%
>14	1,198	3%
Total	37,301	

Average SED 9.9 Inches

Length

Range [ft]	Count	%
<25	790	3%
25-35	4,735	16%
35-45	13,398	47%
45-65	8,989	31%
>65	793	3%
Total	28,705	

Average Length 40.9 feet

Sample Data

Item	Count	% Scanned
Scanned Loads	2,516	
Scanned LED	36,978	50%
Scanned SED	37,301	51%
Scanned Length	28,705	39%
Est. No. of stems	73,818	
Est. Stems/Load	29	
Total Volume [cf]	1,164,841	
Volume/Load	463	
Volume/Stem	16	

Defect Summary

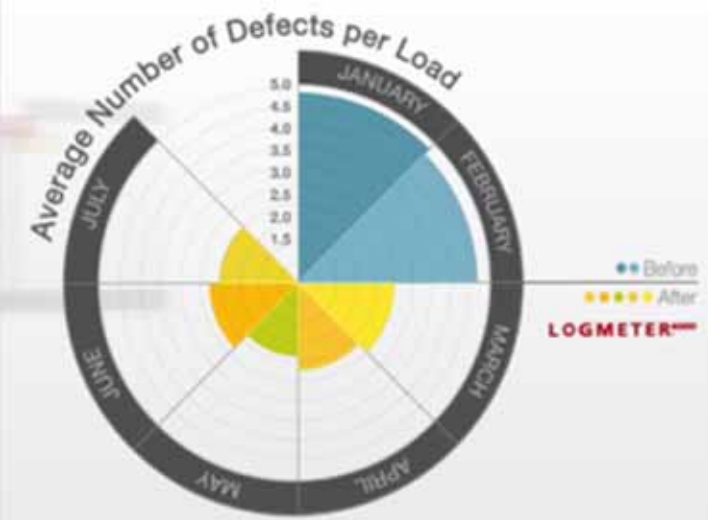
Defect	Count	%Total Defects
Crook/Sweep	3,954	27.8%
Small SED	3,615	25.4%
Small LED	5,345	37.6%
Oversized LED	56	0.4%
Too Short	790	5.6%
Too Long	-	0.0%
Uneven Butt	422	3.0%
Split Butt	16	0.1%
Swelled Butt	10	0.1%
TOTAL	14,208	

Defects/load 5.6
Defects/log 19%
Logs on spec 81%

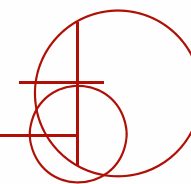
Big, Regular & CnS logs

Item	Count	Unit
Average SED	10	in
Average LED	15	in
Average Length	41	ft
Scanned Loads	3,182	loads
Total volume	1,330,273	cf

The impact of scanning, measuring and auditing every single log load entering the mill and before it is unloaded is realized in the **improvement** of **log size** and **quality** enabling smoother running in the mill and **resulting in increased efficiencies, recovery and profitability of the operation.**



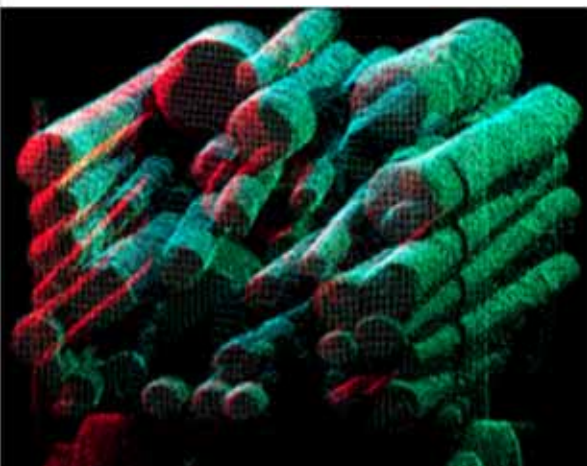
Logmeter 6000 - West



Tool for Log Scaling



Woodtech latest developments



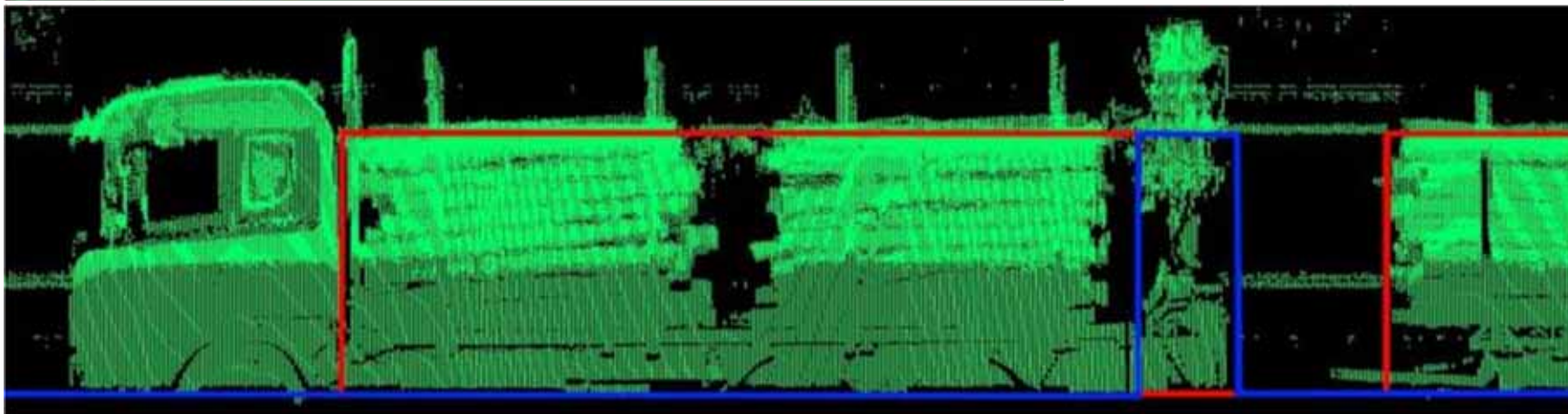
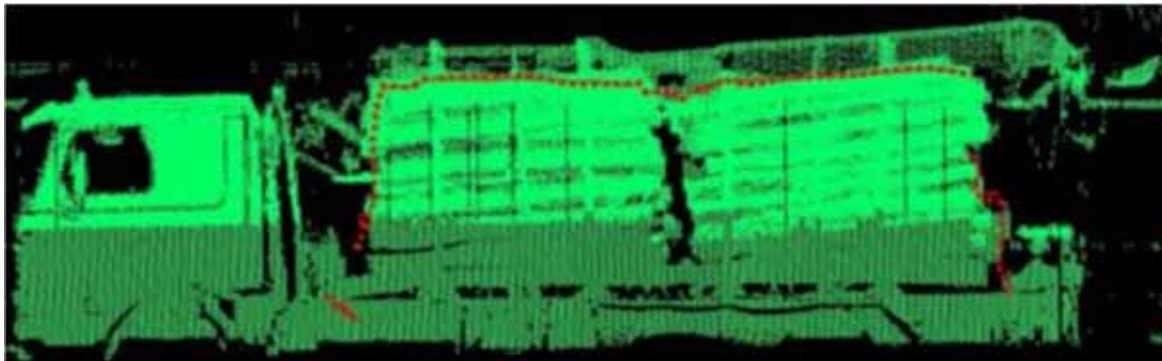
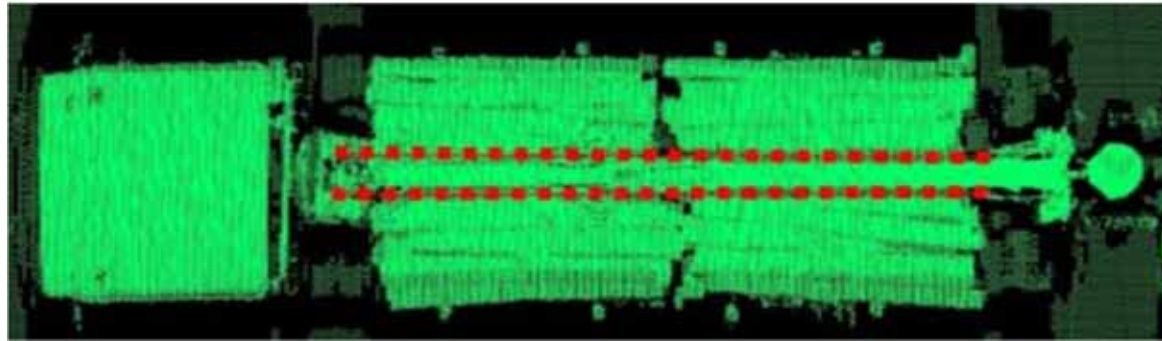
Logmeter ® Evolution



- 200 trucks/day
- Automatically measures in less than two minutes about:
 - >80% of log diameters and lengths in each load to measure volume.
- Automatically detects all logs with sweep/crook that are scanned by the Logmeter®.
- With the help of the Log Marker module the operator quantifies defects on the face of logs using photographs (split, uneven butt, etc.)
- Provides a list of logs/load with measurements
- Auditing system, automatically stores all log data, scanned images and photographs in a data base to provide feedback to supplier, do analysis, rank log suppliers, etc.



Load object (e.g. crane) identification

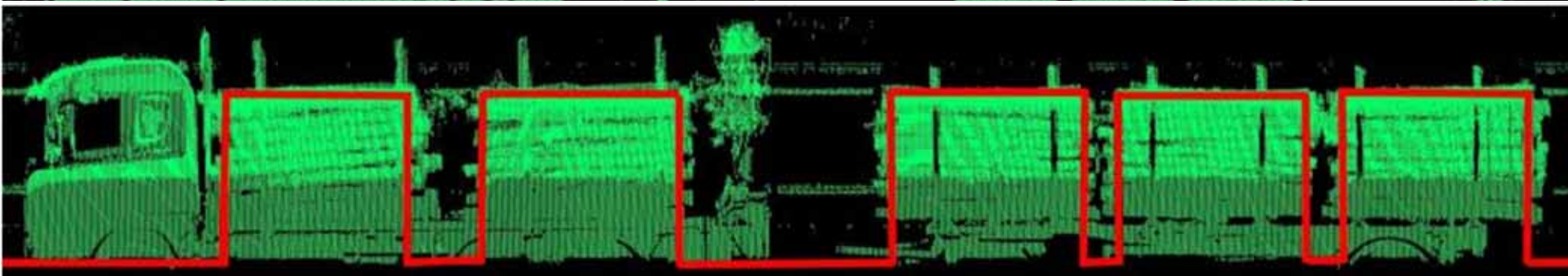
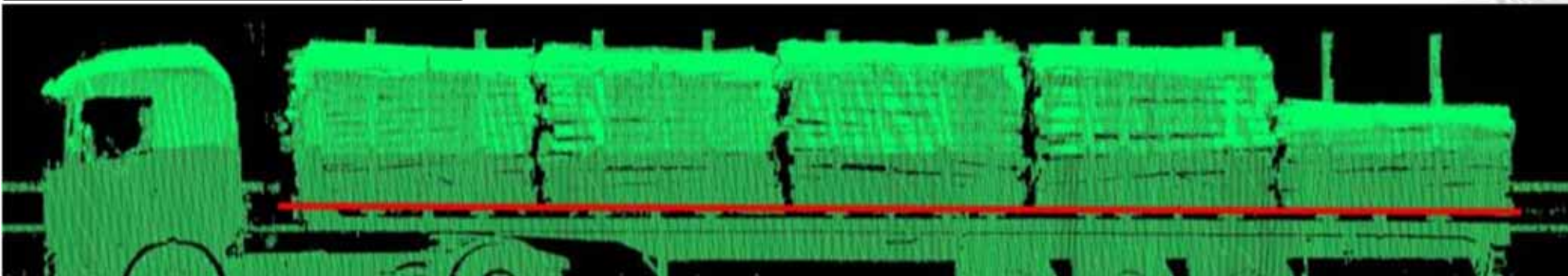
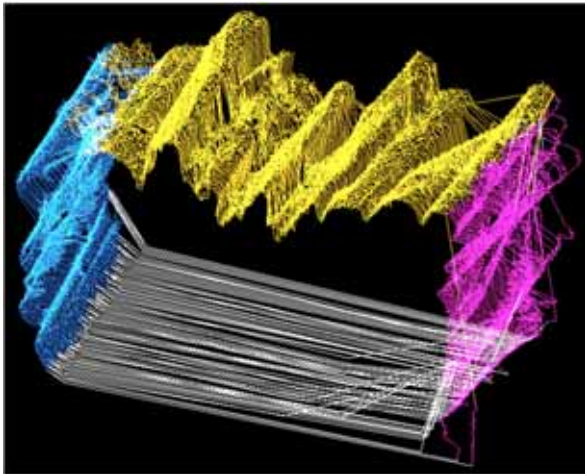


Crane is automatically detected, measured and separated to estimate volume

Load Stereo Volume Improvements



1. Contour estimation
2. Load base detection
3. Bundle limit detection



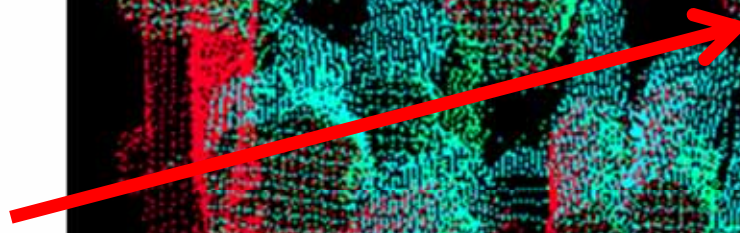
Individual Log Measurements



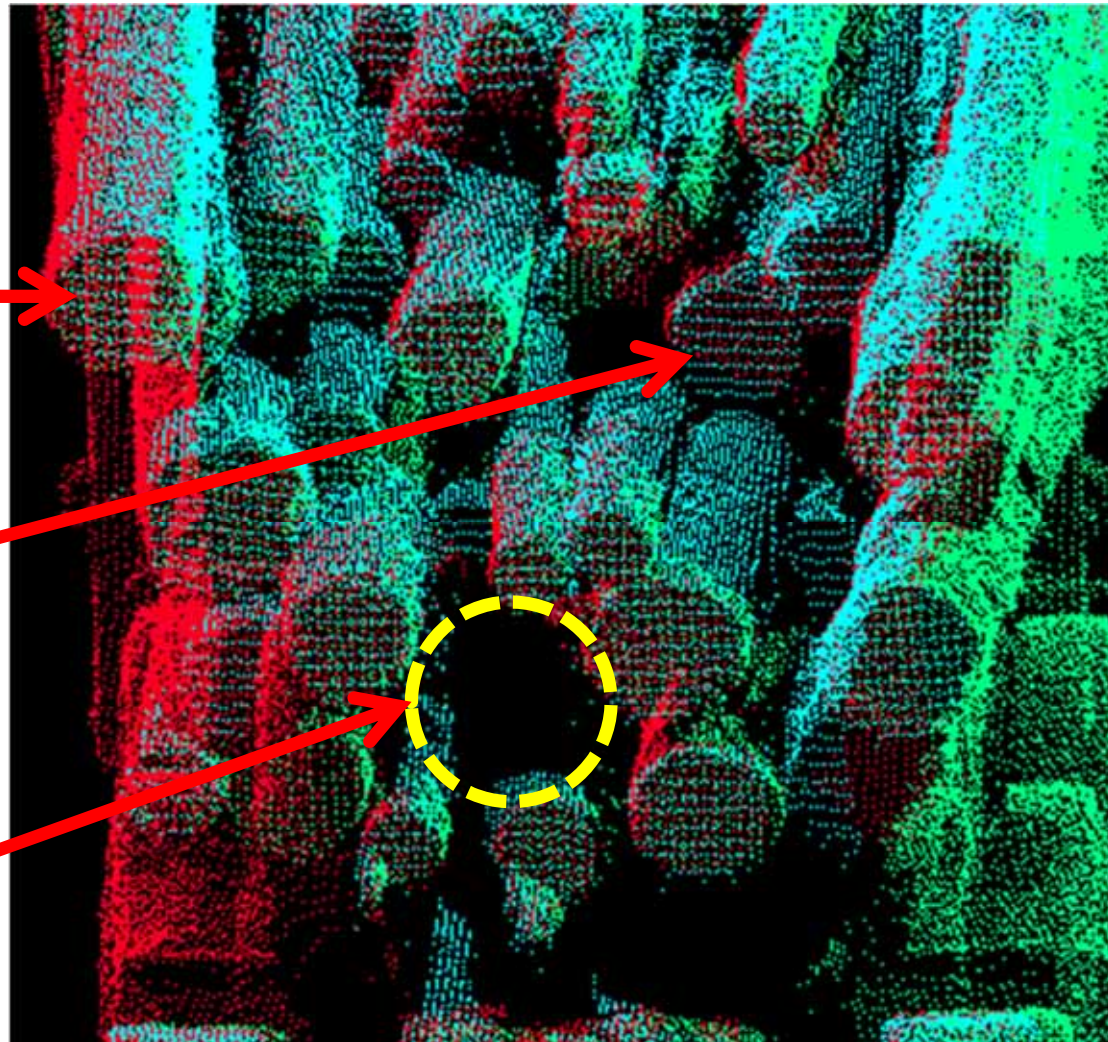
External logs



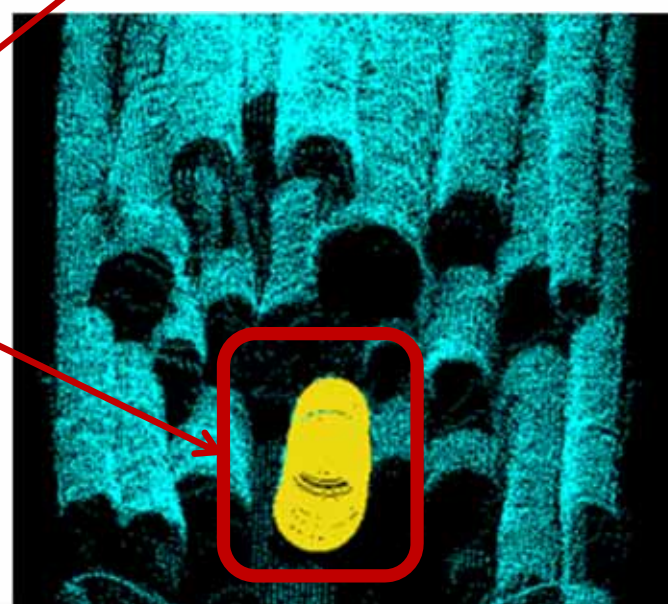
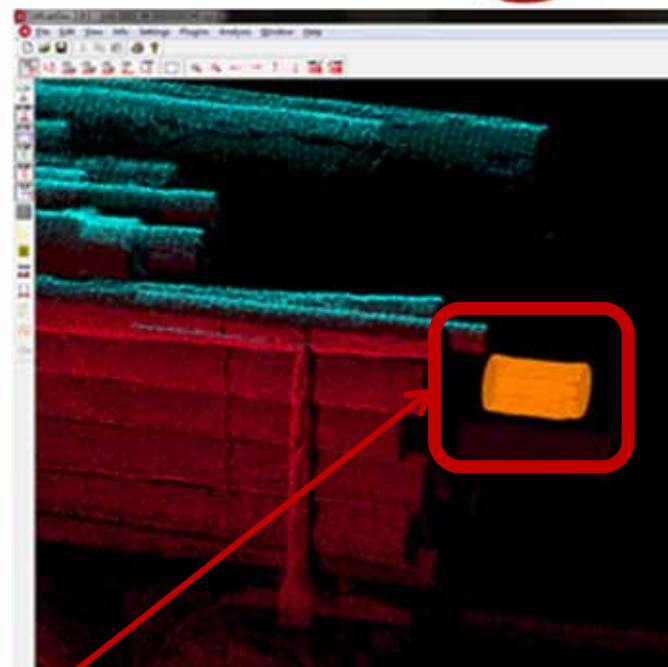
Internal logs



Occluded logs



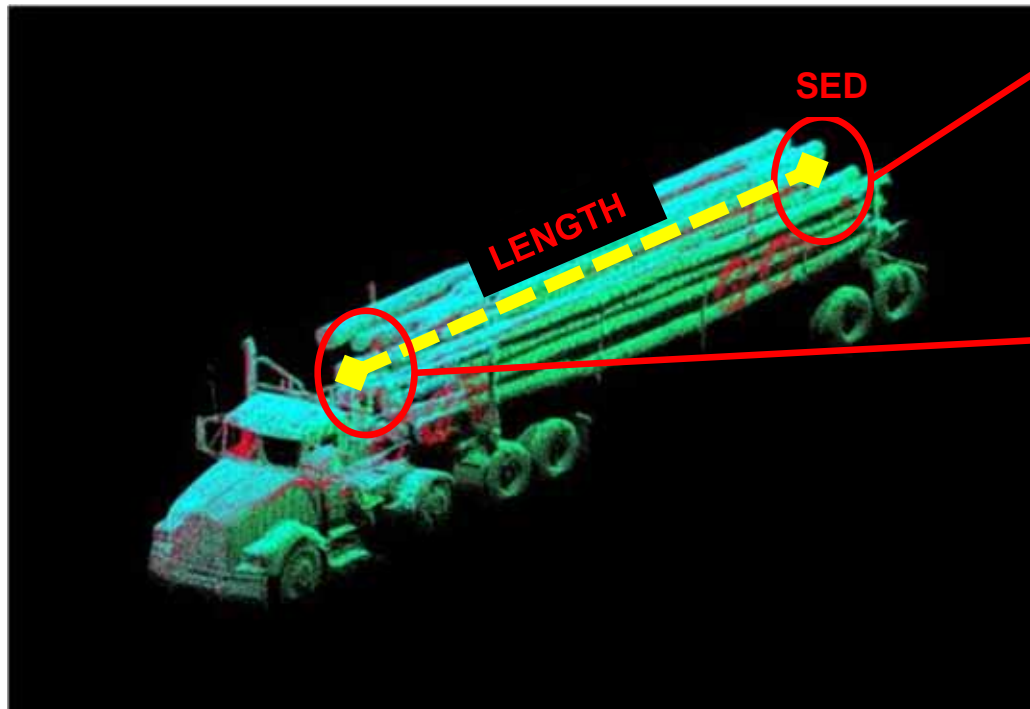
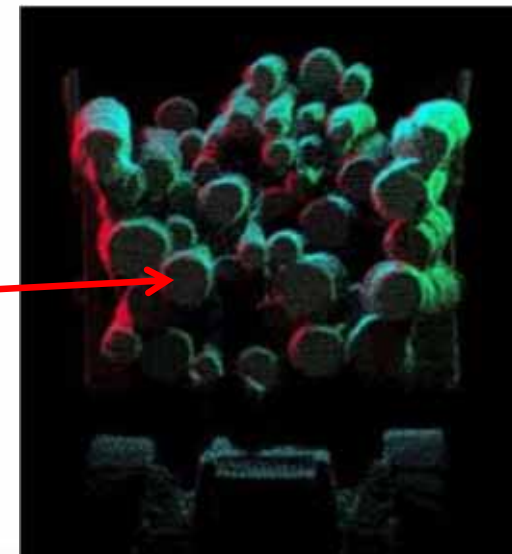
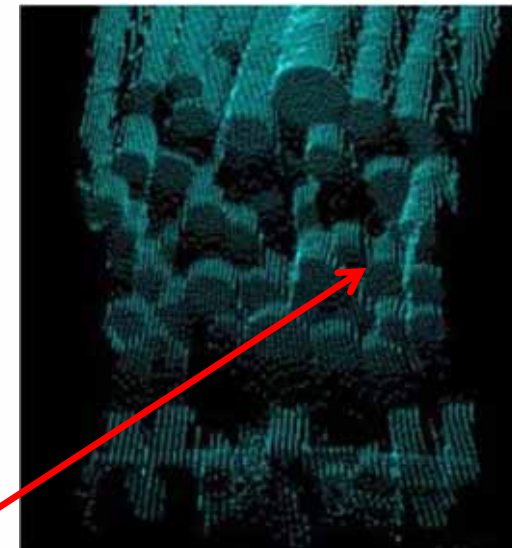
Log section measurement for S.E.D. identification



Face Matching



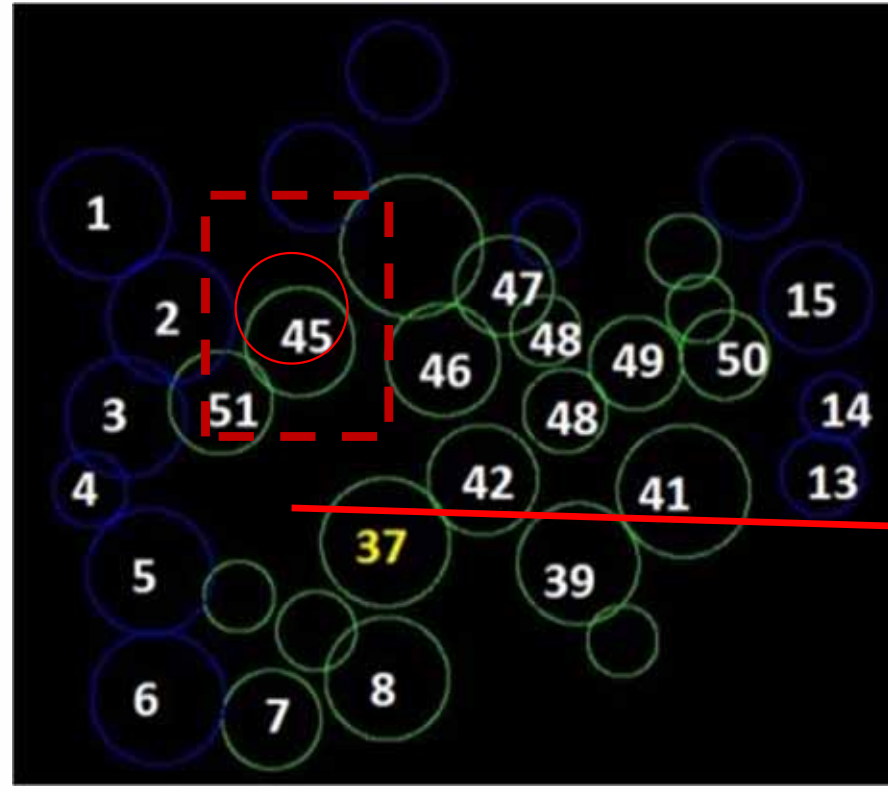
Scanning of front and back ends of the loads provides valuable information for internal log Scribner scaling



Results depend on load type



Face Matching



Scribner Volume Accuracy

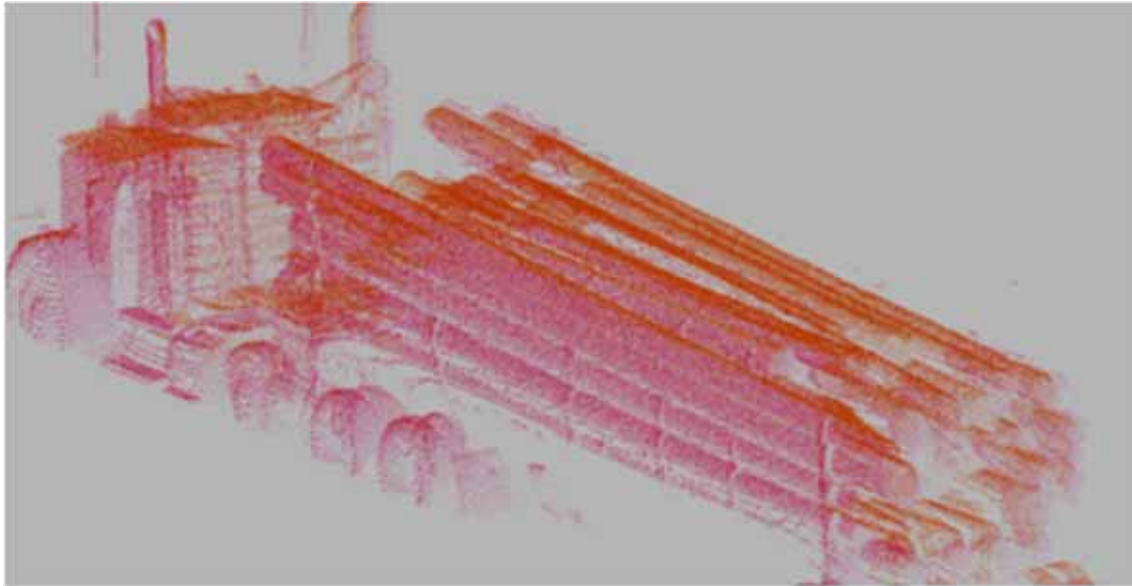
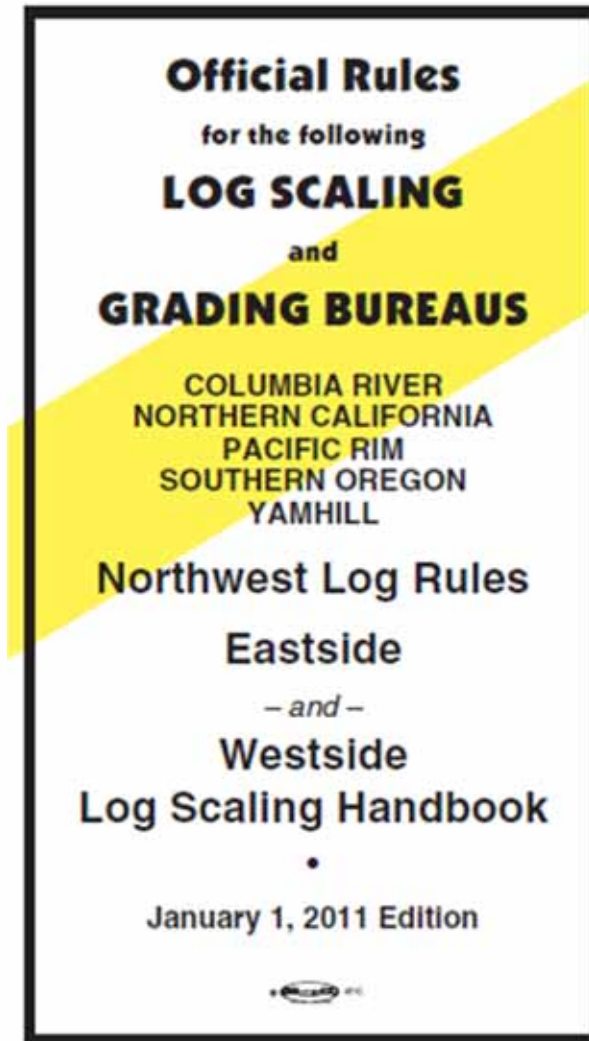
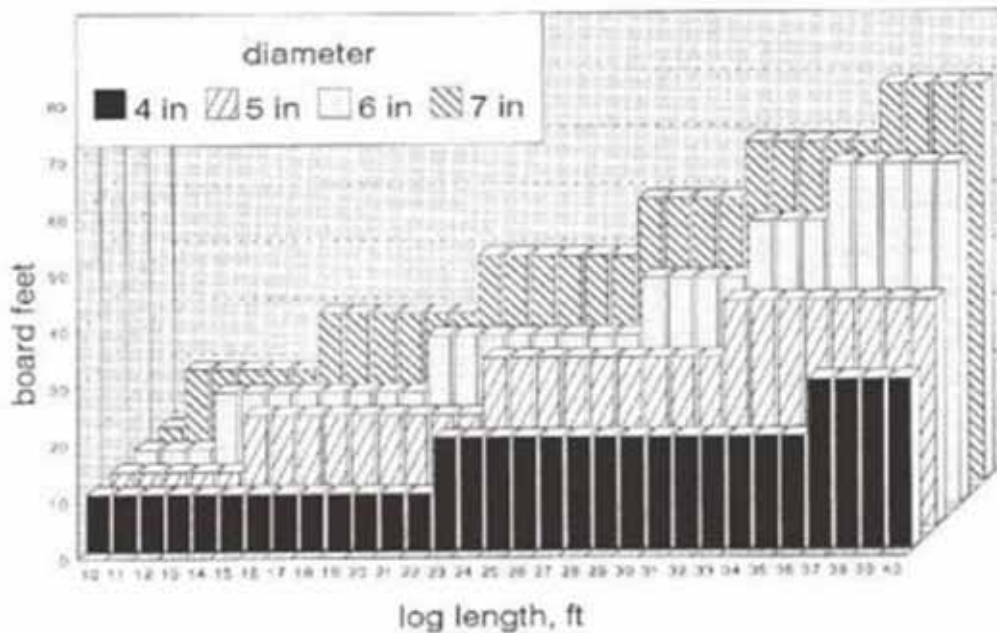
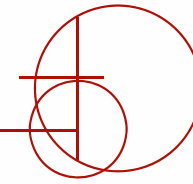


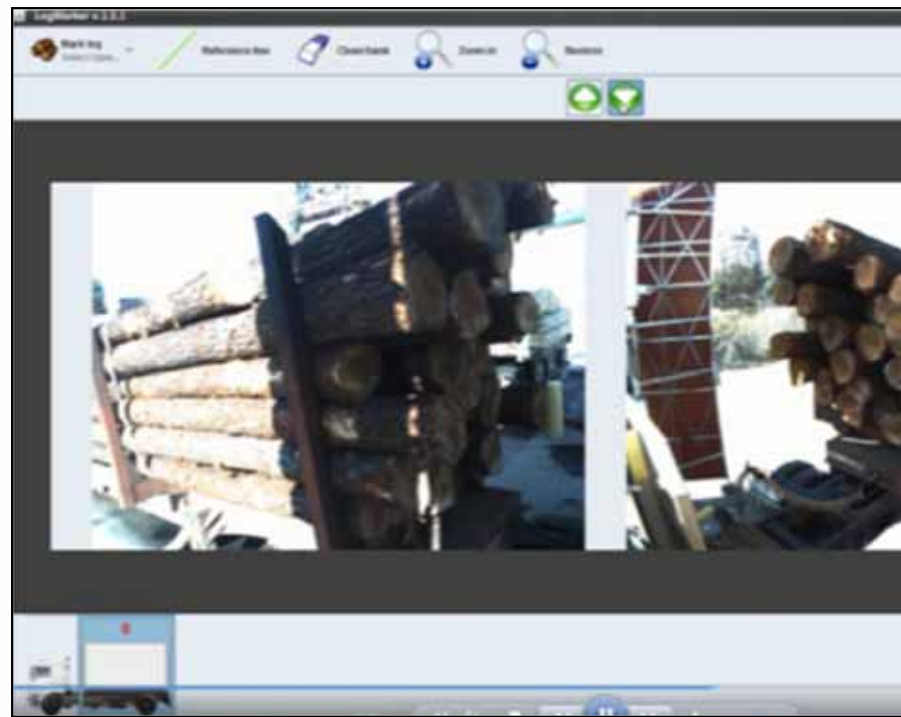
Figure 2-1. Erratic step function behavior of Scribner log rule for West-side logs.



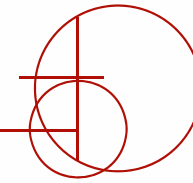
Next developments



Operated assisted knot detection

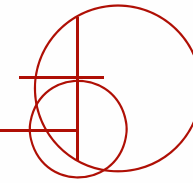


Next developments (cont.)



Identification of logs placed on bottom of load (U.S. South)

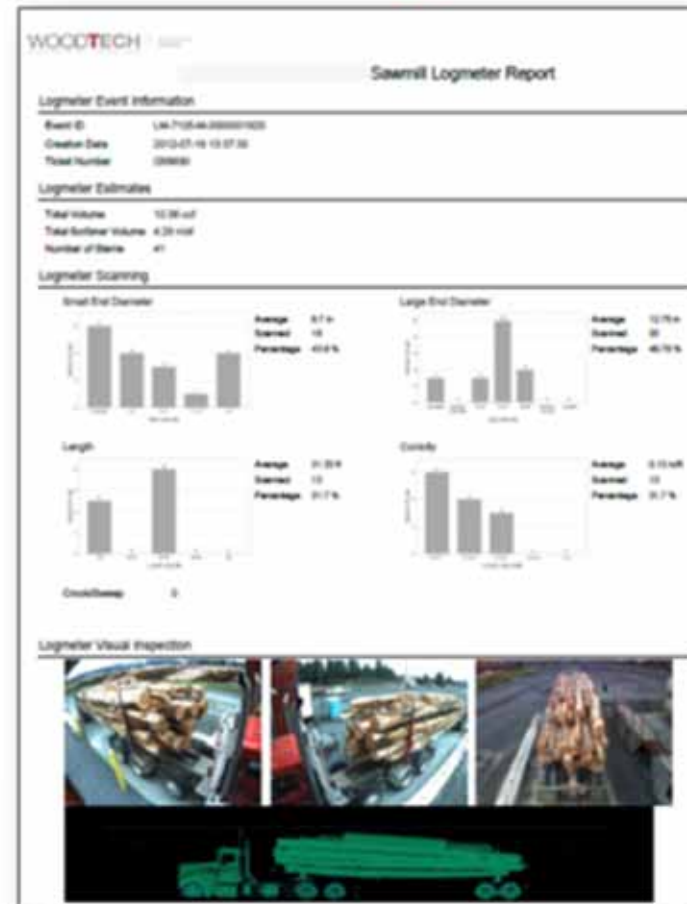
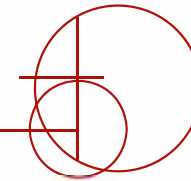
Next developments (cont.)



Species identification

Using photographs scalers can identify species and Logmeter will determine volume of each species per load.

Next developments (cont.)

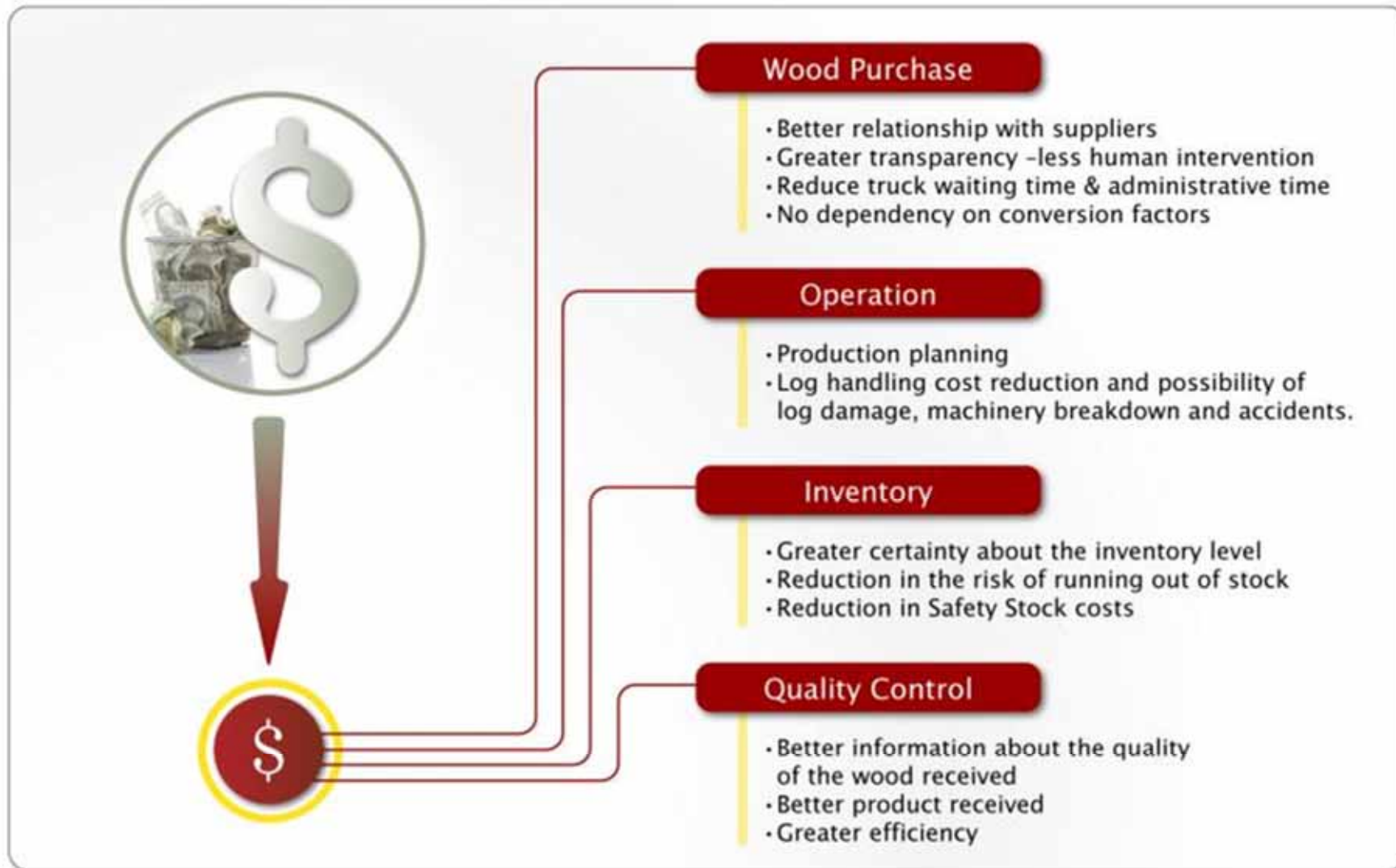


Auditing system will correlate data from weigh scale system and Logmeter

Logmeter will incorporate defective log information into accounting system for payment

Logmeter will include weight of load in report

Logmeter® = Management tool





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